Claims:

1. A method for constructing a three arch excavated tunnel comprising the steps of:

(a) excavating an upper portion of a central tunnel;

(b) excavating a lower portion of the central tunnel;

(c) forming an intermediate wall by assembling reinforcing bars passing through the central tunnel and by placing concrete therein, and grouting a gap formed on an upper end of the intermediate wall and a ceiling portion of the central tunnel;

(d) excavating an upper portion of a left main tunnel;

(e) excavating an upper portion of a right main tunnel;

(f) excavating a lower portion of the left main tunnel;

(g) excavating a lower portion of the right main tunnel; and

(h) installing a drain board and a waterproof layer along inner side surfaces of the intermediate wall and the left and right main tunnels and casting lining concrete therein so that low points collecting water are not formed on the intermediate wall, thus allowing the tunnel to be easily drained through the drain board and drain pipes and residual water pressure to be eliminated.

2. A structure of an intermediate wall of a three arch excavated tunnel, in which a top portion of the intermediate wall penetrating a central tunnel is filled with a grouting material without application of a waterproof material, a drain board and a waterproof layer are located on side surfaces of the intermediate wall, and then lining concrete is cast onto the side walls of the intermediate wall.

3. A method for constructing an intermediate wall of a three arch excavated tunnel, in which a iron mold including an H-shaped section for forming an external portion, a streamline steel plate for forming an internal portion, and a supporting truss angle beam installed between the H-shaped section and the streamline steel plate is manufactured, and concrete is cast once into a space between the H-shaped section and the streamline steel plate through the mold so as to form the intermediate wall from a base to a top in a designated section.

4. The method as set forth in claim 3,

wherein the iron mold moves along rails installed at both sides of the intermediate wall in a longitudinal direction of the tunnel, thus continuously casting and constructing the intermediate wall at every section.

5. The method as set forth in claim 3,

wherein a vibrator is installed adjacent to the streamline steel plate of the iron mold when the concrete is cast at every section, thus allowing the concrete to be firmly cast.

6. A method for constructing an intermediate wall of a three arch excavated tunnel, in which a protective wire netting frame provided with rollers installed at a lower end moves within a blasting section along rails used in constructing the intermediate wall for preventing the intermediate wall from being damaged when left and right main tunnels are excavated by blasting after the construction of the intermediate wall.

7. An iron mold comprising:

an H-shaped section for forming an external portion;

a streamline steel plate for forming an internal portion;

a supporting truss angle beam installed between the H-shaped section and the streamline steel plate; and

rollers installed at a lower end,

wherein the iron mold moves along rails installed at both sides of an intermediate wall.

8. A protective wire netting frame comprising:

a wire netting forming an external portion;

a truss angle forming an internal portion;

a supporting truss angle beam installed between the wire netting and an H-shaped section; and

rollers installed at a lower end.

9. A method for excavating a multi-arch tunnel, in which two central tunnels are excavated, intermediate walls for respectively supporting ceiling portions of the central tunnels are installed, and then a left main tunnel, a right main tunnel

and an intermediate main tunnel are excavated.

10. A method for constructing an intermediate wall, having an upper fixing type structure, of a three arch excavated tunnel, in which lining concrete is cast and fixed to an upper side of the intermediate wall, a lower portion of the intermediate wall has a small thickness reduced as much as the thickness of the lining concrete, and the lower portion of the intermediate wall is one type selected from the group consisting of a column type, an arch type and an intermediate wall type.

11. The method as set forth in claim 10,

wherein the intermediate wall having the upper fixing type structure is one selected from the group consisting of a cast-in-place type intermediate wall, a steel plate girder type intermediate wall and a precast concrete type intermediate wall.

12. The method as set forth in claim 11,

wherein the steel plate girder type or the precast concrete type intermediate wall has a drainage system in which a portion of the intermediate wall penetrating a central tunnel is filled with a grouting agent without application of a waterproofing step, and an upper portion of the intermediate wall is drained such that water is induced toward side walls of the intermediate wall using a drain board and a waterproof layer and then sequentially flows toward the inside of the intermediate wall along a collection tank stopper, a collection tank and drain pipes.

13. The method as set forth in claim 11,

wherein the steel plate girder type intermediate wall has a drainage system in which the intermediate wall is drained such that water from the intermediate wall sequentially flows toward the outside of the intermediate wall along a collection tank stopper, a collection tank and drain pipes.

14. The method as set forth in claim 11,

wherein the cast-in-place type intermediate wall has a drainage system in which a cross section of the intermediate wall is locally reduced or cut so that water induced into the side surfaces of the cast-in-place type intermediate wall flows along openings and then comes down.

15. The method as set forth in claim 11,

wherein a head of the intermediate wall is respectively fixed to the ground around a top portion of the intermediate wall penetrating the central tunnel so that the intermediate wall has an effective structure, and designated portions of lock bolts having a length corresponding to length joints are exposed in advance and then buried into the head of the intermediate wall when the lock bolts are screwed into the top portion of the intermediate wall.

16. The method as set forth in claim 11,

wherein studs are installed in advance in a head of the steel plate girder type or the precast concrete type intermediate wall, concrete is cast into spaces formed by exposing lock bolts, and the spaces are filled with mortar and a milk grouting agent.

17. The method as set forth in claim 11,

wherein pipe holders and utility pipes are installed in the steel plate girder type or precast concrete type intermediate wall, thus allowing cables for communication and electric wires to pass through the intermediate wall.

18. A method for constructing an intermediate wall of a three arch excavated tunnel, in which through holes are formed for damping vibration before left and right main tunnels are excavated by blasting, thus preventing the ground around a top portion of the intermediate wall from being damaged when the left and right main tunnels are excavated by blasting.